Application Serial No: 09/632,011 Attorney Docket No. 79826
In reply to Office Action of 18 September 2003

AMENDMENTS TO THE CLAIMS

1. (canceled).

2. (currently amended): The method according to claim ~~1~~ 4 wherein said carbon substrate providing step comprises providing a high density carbon substrate.

3. (currently amended): The method according to claim ~~1~~ 4 wherein said carbon substrate providing step comprises providing a carbon paper substrate.

4. (currently amended): ~~The method according to claim 1~~ A method for producing an electrocatalytic cathode for use in an electrochemical cell system comprising the steps of:

providing a carbon substrate; and

simultaneously depositing palladium and iridium on said carbon substrate by cyclic voltammetry;

wherein said depositing step comprises depositing said palladium and iridium from a solution containing 1.0 mM $PdCl_2$, 2.0mM Na_2IrCl_6, 0.2M KCl, and 0.1M HCl.

5. (original): The method according to claim 4 wherein said depositing step further comprises performing said cyclic voltammetry at a voltage in the range of +1.06V to -1.0V vs. a silver/silver chloride reference electrode at a scan rate in the range of from about 1.0 millivolt/sec to about 65 millivolt/sec for about 5 to 45 cycles.

6. (original): The method according to claim 4 wherein said depositing step further comprises performing said cyclic voltammetry at a voltage in the range of -0.150V to -0.300V vs. a silver/silver chloride reference electrode at a scan rate of 10 mV/s for 25 cycles.

7. (canceled).

8. (currently amended): The method according to claim ~~7~~ 10 wherein said carbon substrate providing step comprises providing a high density carbon substrate.

9. The method according to claim ~~7~~ 10 wherein said carbon substrate providing step comprises providing a carbon paper substrate.

10. (currently amended): ~~The method according to claim 7~~ A method for producing an electrocatalytic cathode for use in an electrochemical cell system comprising the steps of:

providing a carbon substrate; and

simultaneously depositing palladium and iridium on said carbon substrate by controlled potential coulometry;

wherein said depositing step comprises depositing said palladium and iridium from a solution containing 1.0 mM $PdCl_2$, 2.0mM Na_2IrCl_6, 0.2M KCl, and 0.1M HCl.

11. (original): The method according to claim 10 wherein said depositing step comprises carrying out said controlled potential coulometry at a voltage of -0.25V vs. a silver/silver chloride reference electrode for 10 minutes.

12. (original): The method according to claim 10 wherein said depositing step comprises carrying out said controlled potential coulometry at a potential between 1.0V to -1.0V vs. a

silver/silver chloride reference electrode for a time in the range of from about 3 to 10 minutes.

13. (new): The method according to claim 4, wherein the maximum positive excursion reached during said cyclic voltammetry is approximately -0.15V.

14. (new): The method according to claim 4, wherein said solution is heated to about 70°C.